

REMARKS

Claims 1-23, 55-72, and 88-100 are pending, of which Claims 1, 9, 16, 23, 55, 61, 67, 72, 88, 91, 94, and 97 are independent. Claims 1-4, 7, 9-11, 14, 16-18, 21, 23, and 98-100 stand rejected under 35 U.S.C. § 103. Reconsideration of these rejections for the below reasons is respectfully requested.

Claim Amendments

Claims 1, 9, 16, 23, 55, 61, 67, 72, 88, 91, 94, and 97 are amended to clarify that electronic spreadsheet corresponds to an object in an object-oriented programming language. In addition, Claims 1, 9, 16, 23, 55, 61, 67, 72, 88, 91, 94, and 97 are further amended to specify that an object-oriented method is specified in a cell of the spreadsheet, which enables the object to communicate with another object. Support for this amendment can be found throughout the application, at least at pg. 10, ll. 15 - 17; pg. 12, ll. 21 - pg. 15, ll. 24; pg. 17, ll. 16 - pg. 18, ll. 10. Acceptance is respectfully requested.

35 U.S.C. § 103(a) Rejections

Claims 1-4, 7, 9-11, 14, 16-18, 21, 23, and 98-100 have been rejected under 35 U.S.C. § 103 based on U.S. Publication No. US-2002/0078086 to Alden et al. in view of U.S. Patent No. 7,099,890 to Cahill et al. These rejections are respectfully traversed.

For explanation, but without limitation to the claims, certain embodiments related to independent Claims 1, 9, 16, and 23 will be described. An object-oriented programming environment is created using electronic spreadsheets. An object in an object-oriented programming language is represented by a spreadsheet. The object communicates with another object that is also represented by a spreadsheet, using an object-oriented method call, which is defined in a cell of the object (i.e. in a cell of the spreadsheet). The content in a cell of the object is connected with a window. Thus, the content in the cells of the object includes instructions for the object. The properties of the window are determined based on the content in the cell of the object.

By creating an object-oriented programming environment that represents objects with spreadsheets and enables method calls to be defined in the cells of the objects/spreadsheets, the invention creates a user-friendly object oriented programming environment. In the past, object-oriented programming was often known to be difficult for the novice programmer to grasp, but with the inventive programming environment, an object in an object-oriented programming language can be created effortlessly by creating a new spreadsheet, and this approach makes it much easier to develop software tools using object-oriented programming.

By way of contrast, Cahill relates to an approach that stores objects in the cells of a spreadsheet, and uses the stored objects to access functions that have been defined outside a spreadsheet. As described in the Abstract, “[t]he spreadsheet application of the present invention does this by recognizing a new ‘object’ **data type** in addition to the conventional spreadsheet data types: numbers, text, date, Boolean, and error. The object data type can be used to create an **instance** of an **external object** and **store the object in a cell** of a spreadsheet. Once an object has been created in a spreadsheet, the object can be invoked or **accessed from any other cell or formula in the spreadsheet.**”

Unlike the claimed invention, Cahill requires objects to be specified in the cells of a spreadsheet. In Cahill, it is therefore a more difficult process to create an object in an object-oriented programming language. Conversely, with the claimed invention, a user easily can create an object simply by creating a new spreadsheet.

Moreover, in Cahill, the object is stored in a cell of a spreadsheet. With the present invention, however, the object is the spreadsheet. When a new spreadsheet is created, so is a new object. As such, unlike Cahill, in the present invention, an object is not stored in a cell of a spreadsheet. Thus, Cahill does not discuss the claimed *representing an object in an object-oriented programming language as an electronic spreadsheet, where the electronic spreadsheet is the object*, as set forth in Claim 1 and similarly set forth in Claims 9, 16, 23, 55, 61, 67, 72, 88, 91, 94, and 97.

In addition, in Cahill, an object, which is stored in a cell of a spreadsheet, can be accessed from other cells in the spreadsheet. In the present invention, however, objects are often used outside of the spreadsheets, since the spreadsheets themselves are the objects.

Furthermore, Cahill does not relate to an approach which enables object-oriented method calls to be specified in the cells of a spreadsheet. As such, Cahill does not discuss the claimed *using an object-oriented method defined in at least one cell of the electronic spreadsheet, enabling the object to communicate with another object*, as set forth in Claim 1 and similarly set forth in Claims 9, 16, 23, 55, 61, 67, 72, 88, 91, 94, and 97.

Alden provides a functional visualization of a spreadsheet. Alden teaches to correlate the spreadsheet cells with entities in an influence diagram, and then automatically update the entities in the influence diagram in response to changes made to the spreadsheet. In particular, Alden teaches to detect changes in the visual representation and to automatically change the spreadsheet in response to the detected changes.

Alden, however, does not relate to the inventive approach for creating an object-oriented programming environment for developing computer software. Specifically, Alden discusses creating a visual representation, i.e., an influence diagram that is correlated to the spreadsheet. An influence diagram is not an object-oriented programming environment. Alden does not discuss anything about creating a software programming environment using the spreadsheet. Moreover, Alden does not even relate to object-oriented programming. As such, Alden does not address the problems associated with object-oriented programming, nor does Alden discuss the solutions presented in the claimed invention. Furthermore, there is no motivation to combine Alden with Cahill, because Alden does not even relate to object-oriented programming.

Therefore, it is respectfully submitted that neither Cahill nor Alden, taken alone or in combination, disclose the requirements of the claimed invention as set forth in Claims 1, 9, 16, 23, 55, 61, 67, 72, 88, 91, 94 and 97.

Dependent Claims 2-4 and 7, 8 and 98 depend from base Claim 1; dependent Claims 10-12, 14, 15, and 99 depend from base Claim 9; dependent Claims 17, 18, 21, 22, and 100 depend from base Claim 16; dependent Claims 56, 57, and 59 depend from base Claim 55; dependent Claims 62, 63, and 65 depend from base Claim 61; dependent Claims 68-71 depend from base Claim 67; dependent Claims 89 and 90 depend from base Claim 88; dependent Claims 92 and 93 depend from base Claim 91, and dependent Claims 95 and 96 depend from base Claim 94. For the reasons discussed above, dependent Claims 2-4, 7, 10, 11, 14, 17, 18, and 23 are patentable over Alden.

As such, it is respectfully requested that §103 the rejection of the claims based on Cahill and Alden be reconsidered and withdrawn.

Claims 55-50, 61-65, 67-70, 72, and 88-97 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Microsoft, Excel 2000 Screenshots, 12/31/99, pp./ 1-15 (hereafter Excel 2000) in view of Cahill. This rejection is respectfully traversed.

For reasons similar to those set forth above, neither Excel 2000 nor Cahill, taken alone or in combination, disclose the requirements of the claimed invention. These references do not discuss a programming environment using an electronic spreadsheet where the spreadsheet corresponds to an object in an object-oriented programming language, and the object communicates with another object using a method that is specified in a cell of the spreadsheet. Furthermore, Excel 2000 does not relate to an object-oriented programming environment. As such, the cited references do not disclose the requirements of Claims 55-50, 61-65, 67-70, 72, and 88-97. Reconsideration of the rejection is respectfully requested.

Claims 5-6, 12-13, 15, 19-20, and 22 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Alden in view of Chill in view of U.S. Patent No. 6,243,721 to Duane et al. This rejection is respectfully traversed.

For reasons similar to those set forth above, Alden, Chill and Duane, taken alone or in combination, do not disclose the requirements of the claimed invention. For example, the references, taken alone or in combination, do not discuss a programming environment using an electronic spreadsheet where the spreadsheet corresponds to an object in an object-oriented programming language, and the object communicates with another object using a method that is specified in a cell of the spreadsheet. Moreover, like Alden, Duane does not relate to an object-oriented programming environment. As such, there is no motivation to combine the references. Accordingly, the cited references do not disclose the requirements of Claims 5-6, 12-13, 15, 19-20, and 22. Reconsideration of the rejection is respectfully requested.

Claims 60, 66, and 71 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Excel 2000 in view of Cahill in further view of U.S. Patent No. 6,690,401 to Stead. This rejection is respectfully traversed.

For reasons similar to those set forth above, Excel 2000, Cahill, and Stead, taken alone or in combination, do not disclose the requirements of the claimed invention. For example, the references, taken alone or in combination, do not discuss a programming environment using an electronic spreadsheet where the spreadsheet corresponds to an object in an object-oriented programming language, and the object communicates with another object using a method that is specified in a cell of the spreadsheet. Moreover, Stead does not relate to an object-oriented programming environment. As such, there is no motivation to combine the references. Accordingly, the cited references do not disclose the requirements of Claims 5-6, 12-13, 15, 19-20, and 22. Reconsideration of the rejection is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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